AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-45. (Cancelled)

46. (New) A method for preserving pluripotent human embryonic stem cells (hES) cells for continued storage and propagation, said method comprising subjecting the hES cells to a process of vitrification comprising:

isolating a sample of cells comprising a clump of hES cells from a culture of hES cells, wherein the clump of hES cells is capable of propagation;

incubating the sample in a vitrification solution; and

rapidly cooling the sample such that the sample is vitrified.

47. (New) A method according to claim 46, wherein the sample is rapidly cooled by Open Pulled Straw (OPS) vitrification.

48. (New) A method according to 46, wherein the clump of hES cells comprises about 100 cells.

49. (New) A method according to claim 46, wherein the rapid cooling is performed in a single step by submerging the sample into liquid nitrogen.

50. (New) A method according to claim 46, wherein the hES cells when thawed retain normal karyotype and expression of stem cells markers and form teratomas in mice.

51. (New) A method according to claim 47, wherein the sample is incubated in a first vitrification solution comprising DMEM containing HEPES buffer, FBS, DMSO and EG and

then incubated in a second vitrification solution containing DMEM containing HEPES buffer, FBS, DMSO, EG and sucrose before rapidly cooling the sample.

52. (New) A method according to claim 51, wherein the vitrification solution comprises 10 – 20% DMSO and 10-20% EG.

53. (New) A method according to claim 51, wherein the first vitrification solution comprises 10% DMSO and 10% EG.

54. (New) A method according to claim 51, wherein the second vitrification solution comprises 20% DMSO, 20% EG and 0.5M sucrose.